IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Moulsley et al.
Serial No.	:	10/528,940
Confirmation No.	:	6581
Filing Date	:	March 23, 2005
Group Art Unit	:	2618
Examiner	:	Rui Meng Hu
Attorney Docket No.	:	GB020164US

APPEAL BRIEF
On Appeal from Group Art Unit 2618

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Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on August 7, 2009 and in response to the final Office Action dated June 10, 2009.

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I. REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., and Sharp Corporation the assignees of record as indicated at Reel/Frame 023196/0234.

II. RELATED APPEALS AND INTERFERENCES

The Appellants are not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

a) Claims 1-12 and 14 are pending at the time of filing the appeal brief.

b) Claims 1, 10, and 12 are independent.

c) Claims 1-12 and 14 stand rejected and are the subject of this appeal.

d) Claim 13 is canceled.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as submitted in the Appellants' response filed on March 18, 2009. No claim amendments have been submitted following the response of March 18, 2009, nor are any amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER[1]

The claimed invention, as recited in claim 1, is directed to a method of operating a packet data transmission system having a primary station having a plurality of antennas and at least one secondary station having a plurality of antennas, (page 2, lines 15-18) where the primary station is configured for transmitting packet data on signal paths between pairs of primary and secondary station antennas; (page 2, lines 18-20) the method comprising: the secondary station monitoring its radio environment and sending information about its radio environment to the primary station, (page 2, lines 20-22) the primary station in response to this radio environment information adapting itself and informing the secondary station regarding a type of adaptation made; (page 2, lines 22-23) and the secondary station configuring its receiver resources for processing the received data and interference by choosing selected ones of the plurality of its antennas for receiving interference signals for interference cancellation (page 6, lines 23-27).

The claimed invention, as recited in claim 2, is directed to the method of claim 1, wherein the secondary station recommends to the primary station how it should adapt itself (page 2, lines 20-23).

The claimed invention, as recited in claim 10, is directed to a packet data transmission system comprising: a primary station having a plurality of antennas, (page 2, lines 25-27) signal transmitting and receiving means and means for adapting itself in response to a received signal

[1] It should be explicitly noted that it is not the Appellants' intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.

from a secondary station (page 2, lines 27-28) and means for informing the secondary station regarding the type of adaptation made, and at least one secondary station having signal transmitting and receiving means, (page 2, lines 28-29) a plurality of antennas, means for monitoring its radio environment and for transmitting a signal including information about its radio environment, (page 2, lines 30-31) and means for configuring its receiver resources for processing data signals received from the primary station after adaptation and interference by choosing selected ones of the plurality of its antennas for receiving interference signals for interference cancellation (page 6, lines 23-27).

The claimed invention, as recited in claim 12, is directed to a secondary station for use in a packet data transmission system having a primary station with a plurality of antennas (page 3, lines 17-19) and, in response to uplink signals may adapt a transmission scheme, (page 8, lines 14-15) the secondary station comprising: signal transmitting and receiving means, a plurality of antennas; means for monitoring its radio environment and for transmitting a signal including information about its radio environment, (page 3, lines 20-22) means for receiving information regarding the type of adaptation made by the primary station; and means for configuring its receiver resources for processing received data signals and interference by choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation (page 6, lines 23-27).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1, 10, and 12 are properly rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application No. 2003/0128658 to Walton et al. (hereinafter referred to as "Walton").

B. Whether claims 2-9 and 11 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Walton in view of U.S. Patent No. 6,917,820 to Gore et al. (hereinafter referred to as "Gore").

C. Whether claim 14 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over Walton in view of U.S. Patent No. 4,736,455 to Matsue et al. (hereinafter referred to as "Matsue").

VII. ARGUMENT

The Appellants respectfully traverse the rejections in accordance with the detailed arguments set forth below.

A. Claims 1, 10, and 12 are not properly rejected under 35 U.S.C. 102(b) as being anticipated by Walton.

1. Claim 1

In order for a reference to anticipate a claim, MPEP 2131 requires the reference to teach every element of the claim. It is respectfully submitted that the Office action failed to establish a prima facie case of anticipation.

The Appellants' claim 1 defines a method of operating a packet data transmission system and calls, in part, for:

> "...the secondary station configuring its receiver resources for processing the received data and interference by choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation."

In the "Response to Arguments" section at page 2 of the final Office action, the Office points to Walton at figure 10B, and paragraphs 0032, 0200, 0277, and 0280-0282 as allegedly disclosing the above-mentioned elements of claim 1. The Appellants have considered Walton in its entirety and respectfully disagree with the Office's conclusion because Walton's method for interference cancellation is completely different from and does not describe each and every element of claim 1.

On page 4 of the final Office action the Examiner specifically points to Walton paragraph 30, as allegedly disclosing: "Thus a subset of antennas 852 are selected, or all of the antennas 852 are selected."

However, a careful reading of paragraphs 29-31 of Walton reveals that there is no suggestion that a "subset of antennas 852 are selected." Walton is simply stating a condition in paragraph 30 that the number of receive antennas at a communicating terminal may be equal to or greater than the number of transmit antennas at the base station.

Paragraph 30 goes on to describe that if that condition is met, that is, "[f]or such a terminal, the number of spatial sub-channels is limited by the number of transmit antennas at the base station." Spatial sub-channels are not the same as the Appellants' claimed invention, as specifically recited in claim 1. Furthermore, Walton does not even suggest that the spatial sub-channels are chosen; Walton describes that the spatial sub-channels are limited by the number of transmit antennas at the base station. Thus, Walton is simply describing that if $N_R \geq N_T$ then the number of spatial sub-channels is limited by the number of transmit antennas at the base station. There is no suggestion of choosing selected ones of a plurality of its antennas.

In paragraph 31 Walton goes on to describe another condition in which the number of receive antennas at a communicating terminal may also be less than the number of transmit antennas at the base station. Under this condition Walton describes certain options the base station may employ. Here again there is no choosing selected ones of a plurality of its antennas suggested by Walton.

Furthermore, as explained in Walton at paragraph 0277, figure 10B is a block diagram of a receiver unit capable of implementing an interference cancellation processing technique, where transmitted signals are received by each of antennas 852a-852r. Paragraph 0280 describes that each transmitted signal is demodulated by a demodulator 854a-854r, and that an interference canceller receives the vector streams from all demodulators as well as receiving the decoded data stream from the channel MIMO/data processor 160 within the same stage. Paragraph 0281

further explains that the re-modulated vector streams are further processed with the estimated channel response to provide estimates of the interference due to the decoded data stream, and that the estimates of the interference are subtracted (i.e. canceled) from the received symbol vector streams.

Although Walton discloses a receiver unit with a plurality of antennas, each of Walton's antennas receives signals. However, in contrast to claim 1, Walton does not choose selected ones of the antennas that receive interference signals for interference cancellation because all of Walton's antennas receive interference signals for cancellation. There is no choice involved in selecting antennas to receive interference signals in Walton. Nor does Walton even suggest a need or desire for choosing selected ones of the antennas for receiving interference signals for interference cancellation. As such, Walton does not disclose the element of "choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation," as required by claim 1.

Because Walton does not disclose or even suggest all elements in the Appellants' claim 1, the Appellants respectfully submit that the Office has not presented a prima facie case of anticipation and therefore, the rejection should be reversed. Furthermore, as pointed out above, Walton's antenna configuration is completely different from the elements in claim 1. As such, the rejection to independent claim 1 under 35 U.S.C. 102(b) is unfounded as per MPEP 2131 and should be reversed.

2. Claims 10 and 12

The final Office action uses substantially the same arguments as set forth with regard to claim 1, alleging that claims 10 and 12 are anticipated by Walton. However, independent claims

10 and 12 are different from claim 1 and must be interpreted according to the language in each claim.

For example, claim 10 is directed to a packet data transmission system which includes, in part, "means for configuring its receiver resources for processing data signals received from the primary station after adaptation and interference by choosing selected ones of the plurality of its antennas for receiving interference signals for interference cancellation."

Walton discloses each antenna is receiving interference signals for interference cancellation. There is no choice involved in selecting antennas to receive interference signals in Walton. Nowhere does Walton disclose or even suggest the elements of claim 10, for example, the elements emphasized directly above.

Claim 12 is directed to a secondary station for use in a packet data transmission system which includes, in part, "means for configuring its receiver resources for processing received data signals and interference by choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation."

In Walton there is no disclosure or even suggestion of choosing selected ones of said plurality of its antennas for receiving interference signals, as more particularly recited in claim 12. Therefore, the elements of claim 12 are lacking in Walton. As such, the Appellants respectfully maintains that the rejections to independent claim 10 and 12 are unfounded under 35 U.S.C. 102(b) and should be reversed.

B. Claims 2-9 and 11 are not properly rejected under 35 U.S.C. 103(a) as being unpatentable over Walton in view of Gore.

1. Claims 2-9 and 11

Claims 2-9 and 11 depend ultimately from claim 1 and each dependent claim, based on its dependency, includes all the elements of claim 1. Furthermore, each dependent claim includes additional distinguishing elements.

The final Office action cites Gore as allegedly teaching or disclosing elements in claims 2-9 and 11, which are admitted as lacking by Walton. However, Gore does not cure the deficiencies of Walton as noted above with respect to claims 2-9 and 11. Accordingly, the Appellants essentially repeat the above arguments from claim 1 for each dependent claim 2-9 and 11. The combination of Walton and Gore fails to show or even suggest all the elements recited in each dependent claims, for example "...the secondary station configuring its receiver resources for processing the received data and interference by choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation." As such, the Appellants respectfully submit that claims 2-9 and 11are allowable at least by virtue of their dependency on allowable claim 1, thus the rejection under 35 U.S.C. 103(a) should be reversed.

C. Claim 14 is not properly rejected under 35 U.S.C. 103(a) as being unpatentable over Walton in view of Matsue.

1. Claim 14

Claim 14 depends from claim 12 and includes all the elements of claim 12. Furthermore, claim 14 includes additional distinguishing elements. For example, claim 14 includes the elements of, "wherein the secondary station determines the resources to be used for receiving packet data and the resources to be used for interference cancellation, and wherein a number of interference sources which can be cancelled by a linear combination of antenna outputs is equal

to the number of receiver antennas minus the number of signals to be received from the primary station."

The final Office action cites Matsue as allegedly disclosing elements in claim 14, which are admitted as lacking by Walton. However, Matsue does not cure the deficiencies of Walton as noted with respect to claim 12. Accordingly, the Appellants essentially repeat the above arguments from claim 12. As such, the Appellants and respectfully submit that claim 14 is allowable at least by virtue of its dependency on allowable claim 12, thus the rejection under 35 U.S.C. 103(a) should be reversed.

CONCLUSION

In light of the above, the Appellants respectfully submit that the rejection of claims 1-12 and 14 is in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1. (previously presented) A method of operating a packet data transmission system having a primary station having a plurality of antennas and at least one secondary station having a plurality of antennas, where the primary station is configured for transmitting packet data on signal paths between pairs of primary and secondary station antennas; the method comprising:

the secondary station monitoring its radio environment and sending information about its radio environment to the primary station,

the primary station in response to this radio environment information adapting itself and informing the secondary station regarding a type of adaptation made; and

the secondary station configuring its receiver resources for processing the received data and interference by choosing selected ones of the plurality of its antennas for receiving interference signals for interference cancellation.

2. (previously presented) The method of claim 1, wherein the secondary station recommends to the primary station how it should adapt itself.

3. (previously presented) The method of claim 2, wherein the secondary station recommends that the primary station use a particular subset of antennas for transmitting packet data.

4. (previously presented) The method of claim 2 or 3, wherein the secondary station recommends the maximum desired number of receivable transmission antennas to be used by the primary station.

5. (previously presented) The method of claim 2 or 3, wherein the secondary station recommends the transmission format to be used by the primary station.

6. (previously presented) The method of claim 2 or 3, wherein the primary station adapts itself as recommended by the secondary station.

7. (previously presented) The method of claim 1, 2 or 3, wherein the secondary station determines the resources to be used for receiving packet data and the resources to be used for interference cancellation, and wherein a number of interference sources which can be cancelled by a linear combination of antenna outputs is equal to the number of receiver antennas minus the number of signals to be received from the primary station.

8. (previously presented) The method of claim 1, 2 or 3, wherein the secondary station monitors the transfer function of the paths between the primary and secondary stations antennas.

9. (previously presented) The method of claim 1, 2 or 3, wherein the information about the radio environment of the secondary station includes characteristics of the interference present at one or more antennas of the secondary station.

10. (previously presented) A packet data transmission system comprising:

a primary station having a plurality of antennas, signal transmitting and receiving means and means for adapting itself in response to a received signal from a secondary station and means for informing the secondary station regarding the type of adaptation made, and

at least one secondary station having signal transmitting and receiving means, a plurality of antennas, means for monitoring its radio environment and for transmitting a signal including information about its radio environment, and means for configuring its receiver resources for processing data signals received from the primary station after adaptation and interference by choosing selected ones of the plurality of its antennas for receiving interference signals for interference cancellation.

11. (previously presented) The system as claimed in claim 9, wherein monitoring means comprises means for determining the transfer functions of the radio paths between the primary station and secondary stations.

12. (previously presented) A secondary station for use in a packet data transmission system having a primary station with a plurality of antennas and, in response to uplink signals may adapt a transmission scheme, the secondary station comprising:

signal transmitting and receiving means,

a plurality of antennas;

means for monitoring its radio environment and for transmitting a signal including information about its radio environment,

means for receiving information regarding the type of adaptation made by the primary station; and

means for configuring its receiver resources for processing received data signals and interference by choosing selected ones of said plurality of its antennas for receiving interference signals for interference cancellation.

13. (canceled)

14. (previously presented) The secondary station of claim 12, wherein the secondary station determines the resources to be used for receiving packet data and the resources to be used for interference cancellation, and wherein a number of interference sources which can be cancelled by a linear combination of antenna outputs is equal to the number of receiver antennas minus the number of signals to be received from the primary station.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by the Appellants in the appeal.

X. RELATED PROCEEDINGS APPENDIX

The Appellants are not aware of any appeals or interferences related to the present application.